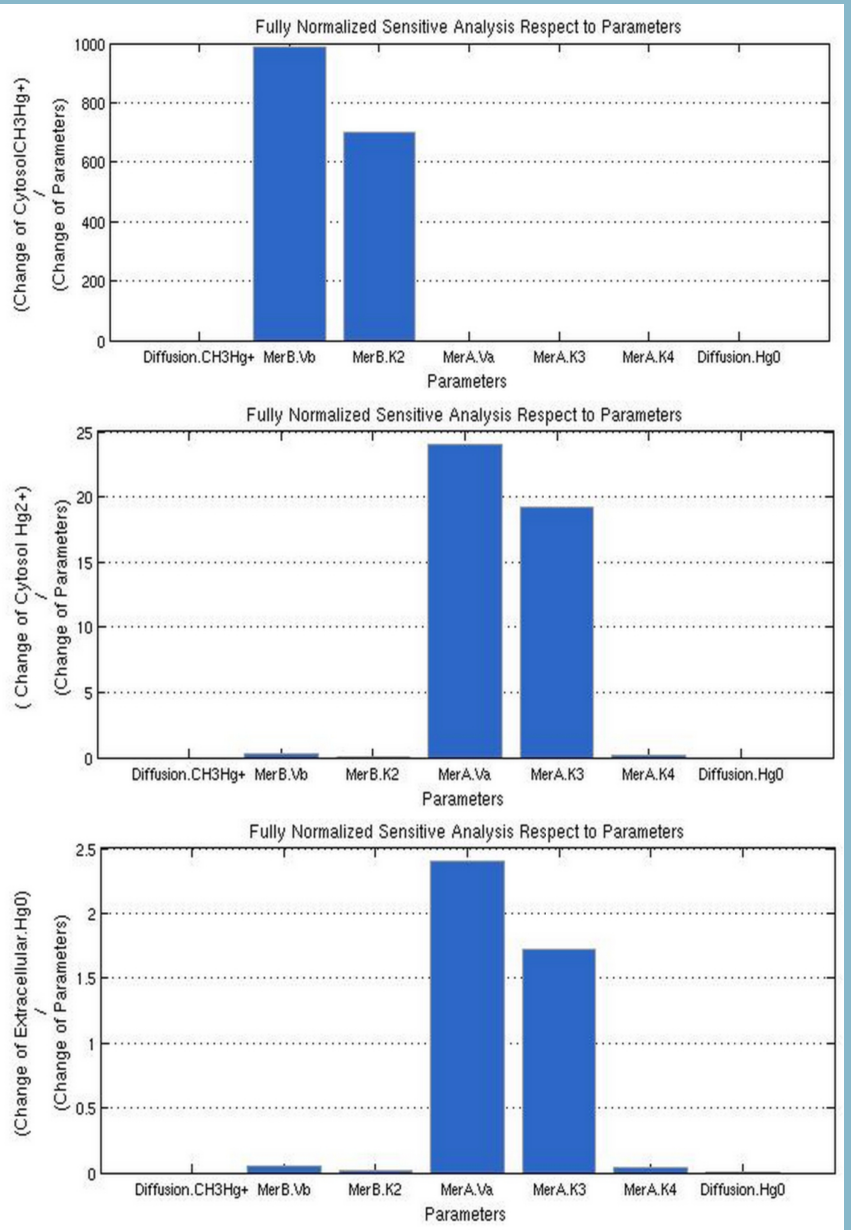
Sensitivity Analysis



We performed sensitivity analysis to give us insight into which parameters will have the greatest effect on each species in the reaction equations. We calculated the local derivatives of each species with respect to the parameters to determine how much the parameters affected the result. The concentration of methylmercury in the cytoplasm was found to be most sensitive to the V and K parameters of MerB. Additionally, the concentration of Hg in the extracellular space and cytosol were both most sensitive to the V and K parameters of MerA. We can use this sensitivity analysis as a guide to what parameters are most useful to improve. If we want the device to be more efficient at methylmercury conversion, efforts should be directed towards improving the enzymatic activity of MerA and MerB.